

IN THE CLAIMS:

The listing of claims replaces all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A computer implemented method comprising:
determining a Point to Point Protocol over Ethernet (PPPoE) client to be
multicast capable;
determining a layer 2 multicast channel from a layer 3 multicast channel;
notifying the PPPoE client of the layer 2 multicast channel;
receiving multicast traffic;
encapsulating the multicast traffic with PPPoE that identifies the multicast
traffic as a PPPoE multicast session; and
transmitting the multicast traffic for the layer 2 multicast channel as PPPoE
multicast traffic in a PPPoE multicast session to the PPPoE client.
2. (Previously Presented) The computer implemented method of claim 1
wherein the layer 2 multicast channel is an Ethernet Media Access Control (MAC)
address and the layer 3 multicast channel is an Internet Protocol (IP) address.
3. (Previously Presented) The computer implemented method of claim 1
wherein determining the Point to Point Protocol over Ethernet (PPPoE) client to be
multicast capable comprises receiving a session request message from the PPPoE

client, the session request message including a tag indicating PPPoE multicast capability.

4. (Previously Presented) The computer implemented method of claim 1 wherein Point to Point Protocol over Ethernet (PPPoE) multicast traffic identifies a PPPoE multicast session identifier and the layer 2 multicast channel.

5. (Previously Presented) The computer implemented method of claim 1 further comprising the Point to Point Protocol over Ethernet (PPPoE) client listening for PPPoE multicast traffic on the layer 2 multicast channel.

6. (Previously Presented) The computer implemented method of claim 1 further comprising the Point to Point Protocol over Ethernet (PPPoE) client decapsulating multicast traffic from PPPoE if the PPPoE client is listening on the layer 2 multicast channel.

7. (Currently Amended) A computer implemented method comprising:
translating a layer 3 multicast channel to a layer 2 multicast channel;
receiving a multicast packet;
encapsulating the multicast packet with a Point to Point Protocol over
Ethernet (PPPoE) encapsulation;
indicating the layer 2 multicast channel in the PPPoE encapsulation;

indicating a PPPoE multicast session identifier in the PPPoE encapsulation;

[[and]]

transmitting the encapsulated multicast packet;

decapsulating the PPPoE encapsulated multicast packet when the layer 2

multicast channel is the desired layer 2 multicast channel.

8. (Original) The computer implemented method of claim 7 wherein the layer 2 multicast channel is an Ethernet Media Access Control address.

9. (Original) The computer implemented method of claim 7 wherein the layer 3 multicast channel is an Internet Protocol address.

10. (Previously Presented) The computer implemented method of claim 7 wherein the Point to Point Protocol over Ethernet (PPPoE) multicast session identifier is a reserved PPPoE session identifier.

11. (Original) The computer implemented method of claim 7 wherein the multicast packet is a video packet.

12. (Original) The computer implemented method of claim 7 wherein the multicast packet is a collaboration application packet.

13. (Previously Presented) A network element comprising:

a control engine to host a Point to Point Protocol over Ethernet (PPPoE) process and to translate a layer 3 multicast channel to a layer 2 multicast channel; and

a forwarding engine coupled with the control engine, the forwarding engine to receive a multicast packet encapsulated with a delivery protocol, to decapsulate the multicast packet from the delivery protocol encapsulation, to encapsulate the multicast packet in a PPPoE encapsulation, to indicate the layer 2 multicast channel in the PPPoE encapsulation, to indicate a PPPoE multicast session identifier in the PPPoE encapsulation, and to transmit the PPPoE encapsulated multicast packet.

14. (Original) The network element of claim 13 wherein the control engine comprises a set of one or more processors and a memory.
15. (Original) The network element of claim 13 wherein the forwarding engine comprises a set of one or more processors and a memory.
16. (Original) The network element of claim 13 wherein the delivery protocol is Asynchronous Transfer Mode.
17. (Previously Presented) An apparatus comprising:
a network interface card to receive traffic and to listen for multicast traffic on a layer 2 multicast channel;

a Point to Point Protocol over Ethernet (PPPoE) module coupled with the network interface card, the PPPoE module to indicate to the network interface card the layer 2 multicast channel, to receive PPPoE encapsulated multicast traffic on the layer 2 multicast channel from the network interface card, to decapsulate multicast traffic from PPPoE; and
a processor coupled with the PPPoE module, the processor to process multicast traffic decapsulated by the PPPoE module.

18. (Original) The apparatus of claim 17 wherein the layer 2 multicast channel is an Ethernet Media Access Control address.

19. (Original) The apparatus of claim 17 wherein multicast traffic is streaming video.

20. (Original) The apparatus of claim 17 wherein multicast traffic is traffic of a collaboration application.

21. (Previously Presented) A system comprising:
a network element to transmit notification of a multicast, to translate the multicast's layer 3 channel to a layer 2 channel, to decapsulate traffic of the multicast from a first delivery protocol, to encapsulate traffic of the multicast with Point to Point Protocol over Ethernet (PPPoE), to

indicate a PPPoE multicast session identifier and the layer 2 channel in the multicast's PPPoE encapsulated traffic, to further encapsulate the multicast's PPPoE encapsulated traffic with a second delivery protocol, and to transmit the multicast's PPPoE encapsulated traffic;

a customer premise equipment (CPE) coupled with the network element, the CPE to decapsulate the multicast's PPPoE encapsulated traffic from the second delivery protocol and to transmit the multicast's PPPoE encapsulated traffic; and

a host coupled with the CPE, the host to receive the multicast's PPPoE encapsulated traffic, to determine if the host is listening for the layer 2 channel indicated in the multicast's PPPoE encapsulated traffic, and to decapsulate the multicast's traffic from PPPoE if the host is listening on the indicated layer 2 channel.

22. (Original) The system of claim 21 wherein the multicast is a streaming video.

23. (Original) The system of claim 21 wherein the multicast is a collaboration application.

24. (Original) The system of claim 21 wherein the layer 2 channel is an Ethernet Media Access Control address.

25. (Original) The system of claim 21 wherein the layer 3 channel is an Internet Protocol address.
26. (Previously Presented) The system of claim 21 wherein the Point to Point Protocol over Ethernet (PPPoE) session identifier is a reserved PPPoE session identifier.
27. (Previously Presented) The system of claim 21 further comprising a bridge coupled with the network element, the bridge to receive the multicast's Point to Point Protocol over Ethernet (PPPoE) encapsulated traffic further encapsulated with the second delivery protocol and to transmit the multicast's PPPoE encapsulated traffic further encapsulated with the second delivery protocol to the customer premise equipment (CPE).
28. (Previously Presented) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:
- requesting a Point to Point Protocol over Ethernet (PPPoE) session;
 - transmitting an indication of PPPoE multicast capability;
 - receiving notification of a layer 3 multicast channel for a multicast;
 - generating a layer 2 multicast channel from the layer 3 multicast channel;
 - receiving a packet of the multicast, the packet having a PPPoE encapsulation;

if the PPPoE encapsulation indicates a PPPoE multicast session, then
determining if the PPPoE encapsulation indicates the layer 2 multicast
channel;
decapsulating the packet from the PPPoE encapsulation if the PPPoE
encapsulation indicates the layer 2 multicast channel; and
discarding the packet if the PPPoE encapsulation does not indicate the layer
2 multicast channel.

29. (Previously Presented) The machine-readable medium of claim 28 wherein requesting the Point to Point Protocol over Ethernet (PPPoE) session comprises transmitting a PPPoE Active Discovery Request (PADR) message to an access concentrator.

30. (Previously Presented) The machine-readable medium of claim 28 wherein the indication of Point to Point Protocol over Ethernet (PPPoE) multicast capability is a tag in a PPPoE Active Discovery Request (PADR).

31. (Previously Presented) The machine-readable medium of claim 28 wherein the Point to Point Protocol over Ethernet (PPPoE) multicast session is identified by a reserved PPPoE session identifier.

32. (Original) The machine-readable medium of claim 28 wherein the multicast is streaming audio.

33. (Original) The machine-readable medium of claim 28 wherein the multicast is streaming data for a ticker.
34. (Previously Presented) A machine-readable medium that provides instructions, which when executed by a set of one or more processors, cause said set of processors to perform operations comprising:
- generating a layer 2 multicast channel from a layer 3 multicast channel;
 - receiving a multicast packet for the layer 3 multicast channel;
 - encapsulating the multicast packet with a Point to Point Protocol over Ethernet (PPPoE) encapsulation;
 - indicating in the PPPoE encapsulation the layer 2 multicast channel and a PPPoE multicast session identifier; and
 - transmitting the PPPoE encapsulated multicast packet.
35. (Original) The machine-readable medium of claim 34 wherein the layer 2 multicast channel is an Ethernet Media Access Control address.
36. (Original) The machine-readable medium of claim 34 wherein the layer 3 multicast channel is an Internet Protocol address.

37. (Previously Presented) The machine-readable medium of claim 34 wherein the Point to Point Protocol over Ethernet (PPPoE) multicast session identifier is a reserved PPPoE session identifier.